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HARD CHOICES

A Report on the Increasing Gap Between America's Infrastructure Needs and Our Ability To Pay for Them

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Appendix 20. SOUTH CAROLINA

A CASE STUDY

PREPARED FOR THE USE OF THE

SUBCOMMITTEE ON ECONOMIC GOALS AND INTERGOVERNMENTAL POLICY

OF THE

JOINT ECONOMIC COMMITTEE
CONGRESS OF THE UNITED STATES

FEBRUARY 25, 1984

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Preface

Infrastructure problems are widespread. They do not respect regional or state boundaries. To secure a better data base concerning national and state infrastructure conditions and to develop threshold estimates of national and state infrastructure conditions, the Joint Economic Committee of the Congress requested that the University of Colorado's Graduate School of Public Affairs direct a twenty-three state infrastructure study. Simultaneously, the JEC appointed a National Infrastructure Advisory Committee to monitor study progress, review study findings and help develop policy recommendations to the Congress.

In almost all cases, the studies were prepared by principal analysts from a university or college within the state, following a design developed by the University of Colorado. Close collaboration was required and was received from the Governor's staff and relevant state agencies.

Because of fiscal constraints each participating university or college agreed to forego normal overhead and each researcher agreed to contribute considerable time to the analysis. Both are to be commended for their commitment to a unique and important national effort for the Congress of the United States.

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INFRASTRUCTURE NEEDS AND RESOURCES OF SELECTED STATE AND LOCAL GOVERNMENT PROGRAMS IN SOUTH CAROLINA

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Any remaining errors, either of commission or omission, are the responsibilities of the authors.

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I. INTRODUCTION

Purpose and Scope of Study

The purpose of this study is to assess South Carolina's public infrastructure needs in the period 1983-2000 and to evaluate revenues available for meeting those needs. For purposes of this study, infrastructure is defined as streets, roads, bridges, airports, railroads and other capital facilities associated with the transportation system; electric and natural gas utility systems; water supply systems and reservoirs used for recreational purposes, and wastewater treatment facilities and hazardous waste disposal sites. All of these facilities involve at lease some measure of public ownership and management, although in some instances, private-sector investments are also present.

Recently, considerable attention has been focused nationally on the deterioration of infrastructure. In South Carolina, individual agencies responsible for particular components of the infrastructure have attempted to increase the awareness of public decision makers and the citizenry at large to problems of maintenance of the state's infrastructure. However, no comprehensive examination of the problem has been undertaken in the state.

The problem in South Carolina, as in most states, is twofold: 1) maintenance of existing facilities at levels that meet reasonable standards for safety and effectiveness; and 2) construction of new facilities to meet the needs of a rather rapidly growing population. The problem is further complicated by the diffusion of responsibilities for maintenance and construction of infrastructure In South Carolina, these responsibilities are not only spread across a number of semi-autonomous

state agencies, but also shared by county and municipal governments and a very large number of special purpose districts.

The diffusion of responsibilities makes it extremely difficult to determine in any precise way the infrastructure needs in South Carolina. Indeed, at the present time, it is impossible to inventory existing infrastructure because no comprehensive register exists of special purpose districts and the functions they are performing. Consequently, this report is based on a reconnaissance survey focusing on major state agencies responsible for infrastructure facilities and on data obtained from a small, nonrandom sample of local governments and special purpose districts. The report should be construed, therefore, as simply a "first-cut" effort to identify and quantify infrastructure needs.

Methods

The basic method used in assembling information contained in this report consisted of: 1) reviewing such published information, including annual reports to the General Assembly of various state agencies, as were available; 2) examining unpublished data, particularly reports filed by counties and municipalities in connection with securing general revenue sharing monies; and 3) interviewing key officials, either in-person or via telephone, to obtain information not contained in other sources. At an early stage of the work it was discovered that few agencies had developed careful estimates of long-term investment needs. In some cases, such as assessments of investments needed to maintain bridges and bring existing bridges up to standard, rather detailed field studies had been conducted and relative reliable information was available. In most cases, however, no such studies have been conducted. Consequently, it has been necessary to make use of rough estimates offered

by personnel in particular agencies judged by their colleagues to be best able to approximate the extent of the need. Such methods of resarch do not permit estimates that can be defended in a rigorous scientific way. Nevertheless, it is felt that the estimates presented in this report provide an indication of the order of magnitude of the infrastructure investment needs in South Carolina.

II. SOUTH CAROLINA PUBLIC FINANCE

State Government Structure

Constitutionally, South Carolina is a strong legislature - weak governor state. Without an understanding of that fact and its ramifications it is impossible to understand the problems of financing infrastructure maintenance and construction in South Carolina.

The Governor of South Carolina has line-item veto on appropriations bills, but very little constitutional authority to affect budgetary processes. Budgeting is done by a five-member Budget and Control Board of which the Governor is chairman. Other members of the Board are the State Treasurer, the State Comptroller General, and the chairmen of the Ways and Means Committee of the State House of Representatives and the Finance Committee of the State Senate. The Board has its own staff headed by an executive director.[1] Politically astute governors with strong personalities have occasionally been able to exercise considerable influence with the Budget and Control Board. Yet such influence arises more from the individual occupying the Governor's chair at any particular time than from the inherent powers of the office.

Until 1980, Governors were forbidden by the state constitution from seeking re-election, and thus were limited in their tenure on the Budget and Control Board to a single four-year term. The other members of the Board, however, have had no such limitation on their tenure. An amendment to the state constitution now allows the Governor to seek re-election to a second term, and the current governor is in the first year of a second term. Nevertheless, the tenure of a Governor on the Board is apt to be less than that of the other members, some of who may serve

for as much as a quarter century or more. The longer tenure of the other members of the Board gives them greater experience with state budgeting. Traditionally, the chairmen of the legislative committees, because they are also respondible for sheparding appropriations bills through the General Assembly, exercise very strong influence on the budgetary process.

Consistent with the weak powers of the Governor, there is also relatively little appointive power associated with that office. State agencies are generally organized as boards or commissions with a number of lay members. The members of these boards and commissions may be appointed by the Governor, but the more usually practice in the case of agencies responsibile for spending large amounts of money is that they are elected by the legislature in joint session. The boards and commissions, in turn, hire executive director who are responsible to them for the day-to-day operations of the various agencies. These executive directors supervise preparation of the budgetary requests of their individual agencies. While the supervising board or commission must pass on the budgetary requests prepared by the staff, the greater in depth knowledge and experience of the executive directors and their staffs give them some advantages in putting the agency budgets together. Often executive directors will have years of tenure with the agency that equal or exceed the total time served by all the members on that agency's board or commission.

Almost all executive directors of state agencies spend some time and energy courting governors, and few choose to ignore deliberately the wishes of a sitting governor. Knowing that the governor's tenure on the Budget and Control Board is apt to be considerably less than that of the

other members, executive directors quite understandably concentrate on cultivating good relations with the other members of the Board and with key members of the General Assembly. In this way, each agency builds up a core of supporters that can usually be counted upon to be friendly to its budgetary requests. Particular attention is often centered on acquiring friends for the agency among the members of the two key legislative committees, the House Ways and Means Committee and the Senate Finance Committee.

Local Government Structure

Until the State Constitution was revised in 1975, local government existed in South Carolina as hardly more than nominal entities. It was said that Columbia was the county seat of every county in South Carolina, and in so far as financial matters were concerned, that statement was partaicularly true. The county budgets, or supply bills, for each county were enacted by the General Assembly, and the functions that counties could perform were quite limited. Municipalities has somewhat greater autonomy on budgetary matters, but nevertheless were (and still are) constrained with regard to taxing powers and the ability to annex adjacent areas.[2]

The rather severe restrictions on the powers of counties that existed prior to 1975 were the principal factors in the creation of a multitude of special purpose districts. South Carolina counties, for example, were prohibited from spending monies for parks and recreational programs, from poviding fire protection services, and from establishing water supply systems. Since urbanizing areas outside the boundaries of established municipalities often had pressing needs for such services, special acts were passed by the General Assembly creating special

purpose districts to perform these functions. The home rule Amendment to the state Constitution enacted in 1975 now provides that counties can perform such functions, but the special purpose districts created prior to 1975 continue to exist. Moreover, they have become a significant political force steadfastly resisting any effort to eliminate or restrict their operations.

No one knows with certainty just how many special purpose districts are extant in South Carolina and what they are doing. The Census of Governments (1977) enumerates 182 such districts (excluding school districts) in the state.[3] But there is no master register of special purpose districts maintained by an office of state government. A detailed examination of the statutes might provide a listing of all special purpose districts created by legislation, but it would not indicate which are still operative and which have become dormant. It is known, however, that many public water systems in the state are operated by special purpose districts as are many fire protection services. In some cases, solid waste collection and disposal is also performed by such districts. Consequently, some part, and perhaps a substantial part, of the infrastructure capital in South Carolina is among the assets of these special purpose districts.

Bonded Debt

Like many other states, South Carolina is required by the state constitution to operate with a balanced budget. Similar requirements exist for all units of local government in the state. Provisions do exist, however, for the borrowing of money in anticipation of tax revenues and for floating bonds to finance capital improvements of various sorts. A very large part of the public infrastructure in the state is

financed by bond issues. A brief examination, therefore, of the bonded indebtedness of the state and its local subdivisions, therefore, is important to understanding the capabilities of South Carolina to meet future public infrastructure needs.

As of June 30, 1982, the total general obligation bonds outstanding against the State of South Carolina amounted to $727,555,000, an increase of $126,370,000 during the fiscal year ending of that date. Table 1 provides a general summary of the bonds outstanding by purpose and year of maturity. Short of a time-consuming detailed analysis of each outstanding bond issue, there is no way to determine what proportion of these bonds were issued to finance "infrastructure." A large proportion were issued to finance construction on campuses of colleges and universities and for prison facilities.

It should be noted that about 25 percent of the state's debt falls into the category labeled, "Capital Improvement Notes," maturing in 1982-83. Technically, these "notes" are not bonds, but short-term debt awaiting refinancing through the issuance of bonds at a time when it is judged that the financial markets are most propitious.

In 1981-82, the state spent $89,721,705 servicing its bonded debt. Beginning in 1981, the expenditures for debt service began to increase significantly as a result of: a) rising interest rates in the economy generally, and 2) increases in the debt outstanding. Debt service expenditures in 1982-83 amounted to about $108 million, and projected debt service for 1983-84 amounts to $114 million. The state has a Triple A bond rating and state officials have been careful to try to protect that rating. The increase in debt service costs over the past three years has given rise to concern. However, as a percentage of all

Table 1. Bonded Debt and Notes by Years of Maturity as of June 30, 1982 (rounded to the nearest dollar), State of South Carolina.

GENERAL OBLIGATIONS	1982-83	1983-84	1984-85	1985-86
School Bonds	$ 12,800,000	$11,550,000	$11,300,000	$11,400,000
Highway Bonds	9,500,000	9,500,000	9,500,000	7,500,000
State Institution Bonds	2,000,000	2,150,000	2,200,000	2,400,000
State Institution Notes	5,335,000	-0-	-0-	-0-
Ports Authority Bonds	125,000	125,000	125,000	125,000
Capital Improvement Bonds	32,000,000	32,750,000	14,750,000	33,500,000
Capital Improvement Notes	185,000,000	-0-	-0-	-0-
Total General Obligations	$246,760,000	$56,075,000	$57,875,000	$54,925,000

GENERAL OBLIGATIONS	1986-87	1987-88	1988-90	1990-91
School Bonds	$48,250,000	$ 3,500,000	$ 3,500,000	$ 2,500,000
Highway Bonds	7,500,000	6,500,000	4,000,000	4,000,000
State Institution Bonds	2,480,000	2,610,000	2,710,000	2,920,000
State Institution Notes	-0-	-0-	-0-	-0-
Ports Authority Bonds	-0-	-0-	-0-	-0-
Capital Improvement Bonds	34,250,000	34,250,000	29,750,000	28,500,000
Capital Improvement Notes	-0-	-0-	-0-	-0-
Total General Obligations	$52,480,000	$46,860,000	$39,960,000	$37,920,000

GENERAL OBLIGATIONS	1990-91	1991-92	1992-93	1993-94
School Bonds	$ 2,500,000	$ -0-	$ -0-	$ -0-
Highway Bonds	2,000,000	-0-	-0-	-0-
State Institution Bonds	3,025,000	2,975,000	2,225,000	2,225,000
State Institution Notes	-0-	-0-	-0-	-0-
Ports Authority Bonds	-0-	-0-	-0-	-0-
Capital Improvement Bonds	27,500,000	17,500,000	16,500,000	16,500,000
Capital Improvement Notes				
Total General Obligations	$35,025,000	$20,475,000	$18,725,000	$18,725,000

GENERAL OBLIGATIONS	1994-95	1995-96	1996-97	TOTALS
School Bonds	$ -0-	$ -0-	$ -0-	$ 67,300,00
Highway Bonds	-0-	-0-	-0-	60,000,00
State Institution Bonds	1,125,000	1,125,000	-0-	32,170,00
State Institution Notes	-0-	-0-	-0-	5,335,00
Ports Authority Bonds	-0-	-0-	-0-	500,00
Capital Improvement Bonds	16,500,000	13,000,000	10,000,000	377,250,00
Capital Improvement Notes	-0-	-0-	-0-	185,000,00
Total General Obligations	$17,625,000	$14,125,000	$10,000,000	$727,555,00
OTHER INDEBTEDNESS				$ 438,14
Total Outstanding				$727,993,14

SOURCE: S.C. State Treasurer's Report, 1981-82

state general fund revenues, the debt service expenditures are somewhat lower in the early 1980's than in the 1970's. During the 1970's, debt service occasionally represented more than six percent of the state total general fund revenues. In fiscal 1981-82, however, it had dropped to only 4.99 percent of general fund revenues, but rose 5.46 percent in 1982-83. Projections for fiscal 1983-84 put debt service expenditures at 5.30 percent of general fund revenues.[5]

By national and regional standards, debt service expenditures in South Carolina are not particularly high. Per-capita debt service expenditures in South Carolina in 1981-82 amounted to $14.22 whereas the national average was $36.72. Only two other Southern states -- Arkansas and Georgia -- reported lower per-capita debt service expenditures. Even when adjustments are made for differences in personal income between states, the debt service expenditure in South Carolina still appears relatively low. Nationally, debt service by state governments amounted to 3.3 percent. Among Southern states, only Arkansas (1.7 percent), Florida and Georgia (1.5 percent) had lower debt service expenditures as a percentage of personal income than South Carolina (1.8 percent).[6]

By comparison to other states and to earlier years, the information above suggests that state government in South Carolina possess some ability to finance additional infrastructure investment. That suggestion requires some qualifications, however. In fiscal year 1981-82, the revenues of the state were below expenditures and it was necessary to draw money from the state reserve fund to balance the budget. At this writing, it appears that the state will end the 1982-83 fiscal year with a very small surplus of revenues over expenditures, but ony as a result

of rather drastic mid-year reductions in the budgets of state agencies and institutions. While some of the problems incurred in the past two years are the result of general economic conditions, it is unlikely that the state could, in the 1980's, allocate a fraction of its total budget to debt service equal to that allocated in the 1970's without making very painful cuts in the appropriations for the operations of various agencies and institutions or, alternatively, without an increase in taxes.

Data on bonded indebtedness of counties and municipalities in South Carolina are much more difficult to obtain and less comprehensive in coverage than that available for state governments. However, some data are available from reports filed by counties and municipalities in connection with qualifying for Federal Revenue Sharing. As of July 1, 1982, 45 of South Carolina's 46 counties reported a total general obligation bonded debt of $249,637,279 and a short-term debt of $8,240,585. Another $170,330,276 of revenue bonds were outstanding. Table 2 provides a summary of this county debt by type. The item labeled "mean" indicates the mean amount of debt of a particular type and the item labeled "no, included in mean" indicates the number of counties reporting debt of a particular type. It is interesting to note that of the long-term bonded debt outstanding against South Carolina counties, $38,618,600, or nearly 15.5 percent of the total, was issued in fiscal 1981-82. Interest expenditures represented 4.2 percent of all revenue received by South Carolina counties in 1980-81, compared to 3 percent of the revenues of all counties in the United States.

Table 3 provides similar information concerning the debt of municipalities in South Carolina. There are 265 municipalities in the state,

Table 2. Debt Outstanding, Issued and Retired for All Counties in South Carolina, Fiscal Year 1982.

Debt	Outstanding at beginning of fiscal year	Issued during fiscal year	Retired during fiscal year	Outstanding at end of F. Y.	
				Revenue bonds	General obligations
1. Long term					
a. For public schools					
Total	$ 4,145,300	0	373,200	0	3,772,100
Mean	$ 829,060	0	74,640	0	754,420
No. included in mean	5	0	5	0	5
b. For water supply					
Total	$ 550,000	0	44,250	505,750	0
Mean	$ 550,000	0	44,250	505,750	0
No. included in mean	1	0	1	1	0
d. Industrial revenue-pollution control bonds					
Total	$ 194,454,000	25,500,000	8,645,000	169,824,526	
Mean	$ 12,153,375	8,500,000	576,333	10,614,032	
No. included in mean	16	3	15	16	
e. For all other purposes					
Total	$ 288,722,587	38,619,600	16,074,379	65,402,429	245,865,179
Mean	$ 6,714,479	1,839,029	373,823	7,266,937	5,996,712
No. included in mean	43	21	43	9	41
2. Short term					
Total	$ 10,471,586				8,240,585
Mean	$ 951,562				915,621
No. included in mean	11				9

Note: Figures not available for 1 of the 46 counties in the state.

Table 3. Debt Outstanding, Issued and Retired for All Cities and Towns in South Carolina, Fiscal Year 1982.

Debt	Outstanding at beginning of fiscal year	Issued during fiscal year	Retired during fiscal year	Outstanding at end of F. Y.	
				Revenue bonds	General obligations
1. Long term					
a. For water supply					
Total	$ 228,879,281	15,610,428	12,302,479	218,722,634	13,220,502
Mean	$ 1,682,935	918,260	94,634	2,025,210	293,789
No. included in mean	136	17	130	108	45
b. For electric system					
Total	$ 8,478,300	315,000	837,647	7,955,653	0
Mean	$ 847,830	315,000	83,765	795,565	0
No. included in mean	10	1	10	10	0
c. For gas system					
Total	$ 1,263,000	170,000	42,000	991,000	0
Mean	$ 252,600	170,000	14,000	247,750	0
No. included in mean	5	1	3	4	0
d. Industrial revenue-pollution control bonds					
Total	$ 4,000,000	0	200,000	3,800,000	
Mean	$ 4,000,000	0	200,000	3,800,000	
No. included in mean	1	0	1	1	
e. For all other purposes					
Total	$ 66,896,254	6,747,321	5,989,769	29,072,257	37,680,560
Mean	$ 668,963	259,512	61,750	908,508	438,146
No. included in mean	100	26	97	32	86
2. Short term					
Total	$ 21,196,638				33,087,362
Mean	$ 557,806				945,353
No. included in mean	38				35

Note: Figures not available for 15 of the 265 municipalities in the state.

15 of which did not report and are not included in the data shown in Table 3. Those municipalities reporting show a total long-term debt of $50,901,062, of which almost 26 percent represents debt for water service systems not underwritten by water systems revenue. The bonds issued by municipalities in fiscal 1981-82 exceeded in amount only slightly the bonds retired during the year. Indeed, the long-term general obligation debt of South Carolina municipalities is less than twice as great as the short-term debt occurred in anticipation of tax revenues. In general, therefore, it appears that the debt burden of South Carolina municipalities is quite light, although the total debt, including revenue bonds of various sorts is substantial. Indeed, interest on general debt required only 0.7 percent of all revenues of South Carolina municipalities in 1980-81, while all U.S. municipalities spent an average of 3.5 percent of their revenues on general debt interest.

Tax Burden

Table 4 provides the most recent data available for comparison of the relative tax burden in South Carolina and its neighboring states. In examining this table, the most important consideration is that median family income is low in South Carolina by both national and regional standards. This fact, combined with the progressive rate structure of the federal income tax, means that a smaller percentage of median family income is paid in federal income taxes by South Carolinians than in neighboring states. State personal income taxes in South Carolina relative to median family income are low compared to the neighboring states, but only marginally so. The percentage of median family income going for other types of taxes in South Carolina is within the range established by the neighboring states. Overall, the tax burden carried by South Carolinians is about 89 percent of the median carried for the nation.

Taxes could be affected in South Carolina without over-burdening the state's citizens relative to the burden carried by citizens in other (including neighboring) states. Yet, as a low-income state still relatively underdeveloped in its economy, South Carolina cannot affort to increase taxes substantially without possible adverse consequences in attracting new economic investments.

Table 4. Direct Taxes as a Percentage of City Median Family Income, South Carolina and Adjacent States, 1980.

	South Carolina	North Carolina	Georgia
Federal Personal Income Tax	9.4%	10.3%	11.4%
Social Security Tax	6.1%	6.1%	6.1%
Local Property Tax	2.0%	1.8%	2.3%
State-Local Personal Income Tax	2.4%	3.5%	2.7%
State-Local General Sales Tax	1.3%	1.2%	1.3%
TOTAL:	21.2%	22.9%	23.8%
Tax Burden as a % of U.S. Median	89%	96%	100%
Median Family Income	$19,292.	$1,900.	$24,733.

Source: Advisory Commission on Intergovernmental Relations (ACIR), Washington, D.C., April, 1983.

Although recent data are not readily available, relative tax increases in South Carolina compared to other states have been substantial in the 1966-1976 period. Table 5 shows the percentage increase in state and local taxes in the various states and the District of Columbia in that period. The percentage increase in South Carolina is 171 percent, ranking the state ninth among the 51 entities.[7] In 1977, citizens of municipalities in the counties of the state with the highest

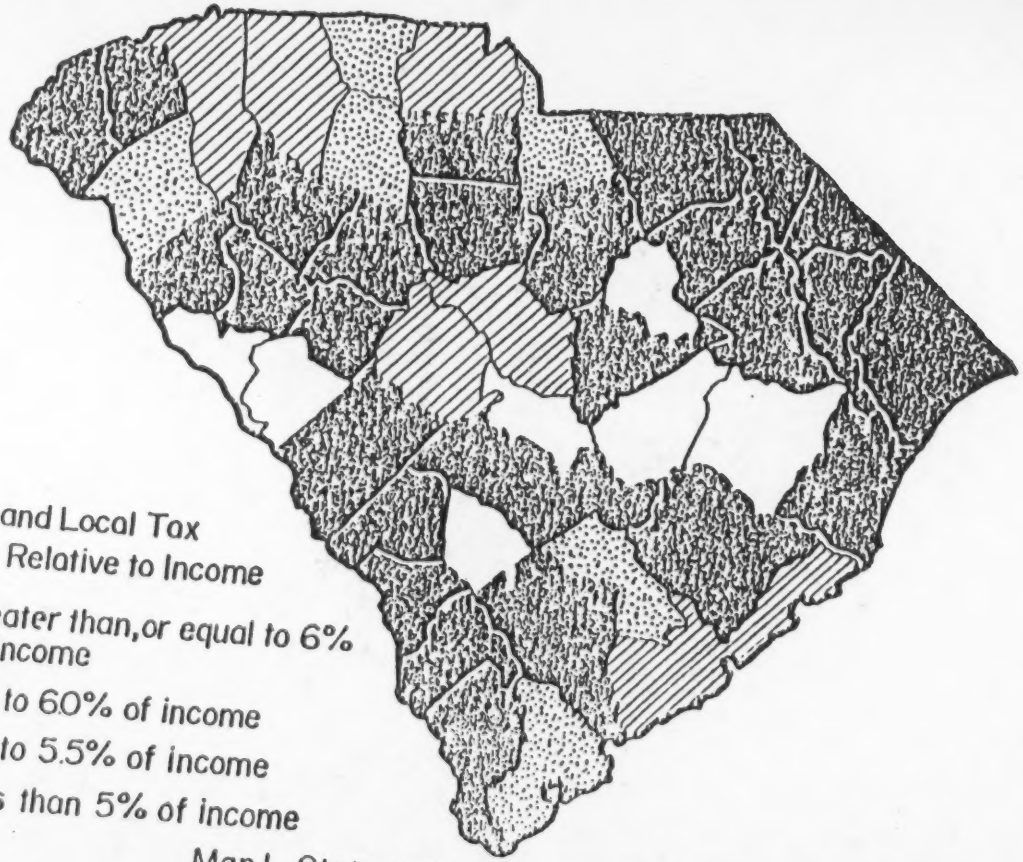
Table 5. Percent Increase in State and Local Taxes, U.S., 1966-1976.

Alaska----------561	Arizona----------147
District of Columbia------197	Connecticut----------146
Virginia----------188	Montana----------145
Kentucky----------184	Rhode Island----------145
Maryland----------183	California----------144
West Virginia----------180	Arkansas----------142
New York----------178	Michigan----------142
New Jersey----------175	Ohio----------141
South Carolina----------171	Nevada----------139
Massachusetts----------169	Delaware----------139
Georgia----------166	New Hampshire----------138
Maine----------165	Oregon----------135
Nebraska----------165	Missouri----------133
Texas----------165	Wisconsin----------131
Wyoming----------165	New Mexico----------129
Mississippi----------164	Florida----------125
Pennsylvania----------162	Iowa----------121
Illinois----------160	Oklahoma----------121
North Dakota----------157	Colorado----------118
Hawaii----------156	Washington----------117
Tennessee----------155	South Dakota----------116
North Carolina----------154	Kansas----------115
Alabama----------151	Utah----------110
Vermont----------150	Indiana----------107
Louisiana----------149	Idaho----------106
Minnesota----------148	

local tax rates were paying about eight percent of their incomes, on average, in state and local states, but the percentage varied widely across the state. Map 1 shows the state and non-municipal local tax burden as a percentage of personal income carried by taxpayers in each of South Carolina's 46 counties in 1977. Note, however, that the information contained in Map 1 does not include indirect taxes and taxes paid by corporations.

An additional factor in viewing the tax system in South Carolina is that is relatively regressive. Figure 1, taken from earlier work by Hite and Fleming, provides a comparison of the percentage of income paid in state and local taxes by taxpayers of various income levels in Columbia, South Carolina, New York City, and Los Angeles. While, in the main, the tax burden relative to income is lower in Columbia than in the other two cities, that tax burden, as it falls on relatively low income persons, is higher in Columbia than in New York City and about the same as that felt by lower income taxpayers in Los Angeles. There are a number of reasons why this is so: 1) the state income tax in South Carolina is progressive only up to $10,000 per year of taxable income, and proportional for additional income; 2) the property tax assessment ratio on rental property in South Carolina is higher than that on owner-occupied property and there is very little public housing in the state; 3) motor vehicles are taxed as personal property in South Carolina and the assessment ratio for personal property is relatively high.

Given the regressive nature of the present tax system in South Carolina, it seems clear that if additional investments in infrastructure are to be financed by state and local taxes and if there is no major overhaul of the existing tax system in the state, those investments will


State and Local Tax
Effort Relative to Income
Greater than, or equal to 6%
of income
5.5 to 6.0% of income
5.0 to 5.5% of income
Less than 5% of income

Map I. State and Local Tax Effort Relative Income in South Carolina Counties, 1977

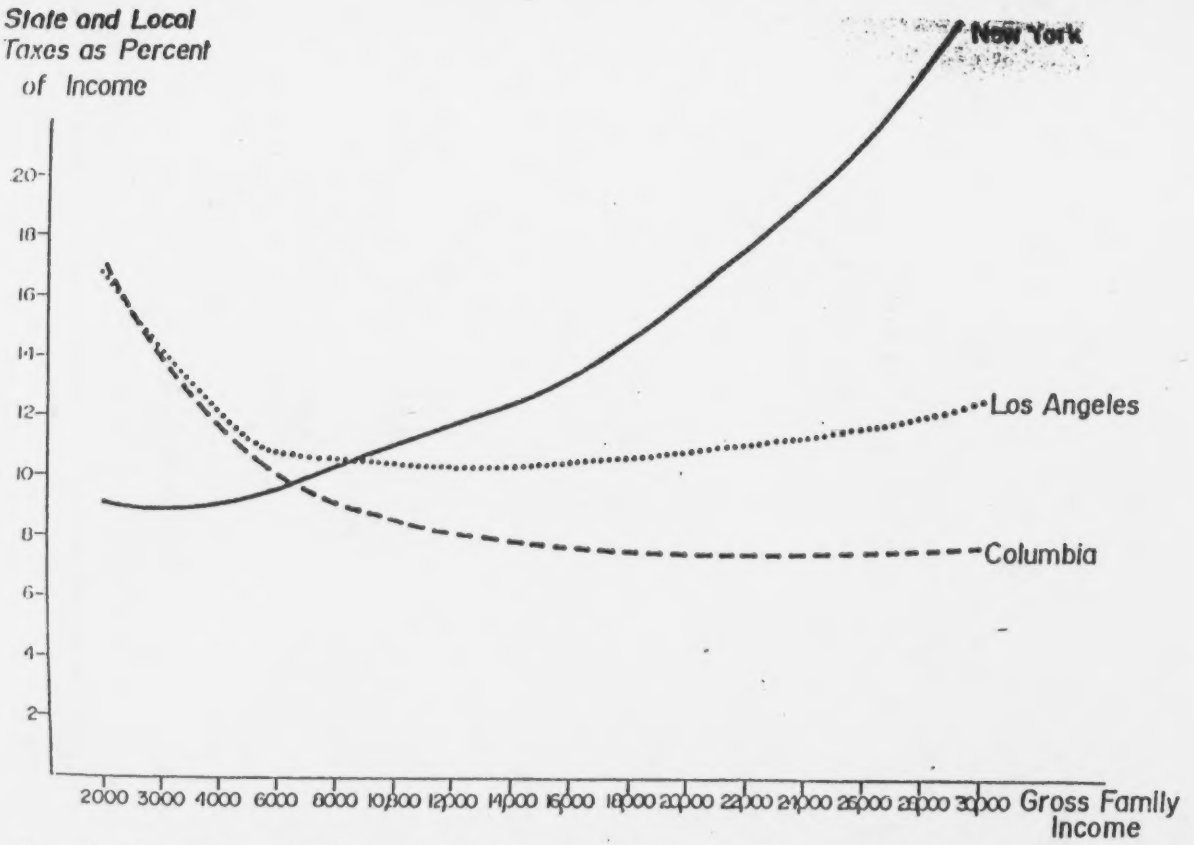


Figure I. Comparision of State and Local Taxes as Percent of Income, Three Selected Cities, 1977

increase the tax burden felt by lower income persons relative to that felt by middle and upper income level persons.

Capital Budgeting and Infrastructure Planning

The relatively large increases in state bonded indebtedness that occurred in the 1970's have given rise to concern about the procedures used by the state in capital budgeting. A Joint Bond Review Committee made up of members of both houses of the General Assembly has been established. In addition, at the request of the Budget and Control Board, two agencies of state government -- the Commission on Higher Education and the State Department of Corrections -- have prepared ten-year permanent improvement plans. While these two agencies represent a substantial share of the demand for bond issues to finance capital improvements, the state still does not have a comprehensive program for assessing future capital needs and for determining how those needs can be met.

There is a strong consensus among state leaders that a more rational planning process is needed. A preliminary step toward establishing that process is currently underway with an inventory of state-owned buildings and an assessment of their condition. Out of that work will come a determination of the expenditures required to bring existing structures up to standards and to maintain those structures at standards. Some few units of local government have invested efforts in assessing specific infrastructure needs. In Spartanburg County, for instance, a detailed survey was performed to determine the conditions of all county-operated roads and to estimate the costs of maintenance, including bringing substandard roads up to standards. To date, however, such efforts are ad hoc in nature. Lack of a strong executive authority in the state will probably hamper establishment of a comprehensive planning process.

III. POPULATION AND ECONOMIC OVERVIEW

Demographic Trends

South Carolina is geographically a relatively small but a populous state. An area of 31,113 square miles ranks it 40th among all states,[1] and its 1980 population of 3,122,814 was 24th in the nation.[2] Thus, South Carolina has a population density of about 103 persons per square mile. Between 1970 and 1980, the population of the state increased by 20.5% as compared to a national increase of 11.4%.[3] The population growth of the last decade was not only greater than that of the nation but also greater than that of all states in the South Atlantic region other than Florida[4] (See Figure 2).

Much of the growth in South Carolina's population can be attributed to changes in migration (see Table 6). The state experienced net outmigration during the first 70 years of this century. Between 1900 and 1970, the state lost an estimated 1,756,000 people to outmigration.[5] The 1970s gave rise to a substantial net inmigration. During this decade, 52%[6] of the population change was due to net inmigration. This reversal in migration is expected to have a significant impact on population growth into the future. Over the decade, net inmigration fluctuated from a high of 44,327 in 1973-74 to a low of 15,382 for 1979-1980.[7] Although declining, net migration has provided additional persons of child bearing age and thus a demographic foundation for future population growth in South Carolina.

Although the state reversed the trend of outmigration, eleven counties had net outmigration during the 1970s. Outmigration seems to have negatively impacted the population change in counties like Chester, Fairfield and McCormick, all of which had negative or only slightly

Table 6. South Carolina Total Population, April 1, 1980 and April 1, 1970 With Components of Change.

County	----Population---- 1980	1970	-----Change------ Number	Percent	--Components of Change (1970-1980)--- Births	Deaths	Increase	Migration Number
Abbeville	22,627	21,112	1,515	7.2	3,338	2,197	1,141	374
Aiken	105,625	91,023	14,602	16.0	16,344	8,072	8,272	6,330
Allendale	10,700	9,783	917	9.4	2,014	1,148	866	51
Anderson	133,235	105,474	27,761	26.3	18,984	10,530	8,454	19,307
Bamberg	18,118	15,950	2,168	13.6	2,990	1,691	1,299	869
Barnwell	19,868	17,176	2,692	15.7	3,613	1,733	1,880	812
Beaufort	65,364	51,136	14,228	28.8	12,751	3,219	8,932	5,296
Berkeley	94,727	56,199	38,528	68.6	14,567	3,942	10,625	27,903
Calhoun	12,206	10,780	1,426	13.2	2,013	1,126	887	539
Charleston	276,712	247,650	29,062	11.7	48,943	18,718	30,225	-1,163
Cherokee	40,983	36,699	4,314	11.8	6,883	3,821	3,062	1,252
Chester	30,148	29,811	337	1.1	5,522	3,376	2,146	-1,809
Chesterfield	38,161	33,667	4,494	13.3	6,311	3,586	2,725	1,769
Clarendon	27,464	25,604	1,860	7.3	4,552	2,649	1,903	-43
Colleton	31,776	27,622	4,154	15.0	5,064	3,206	1,858	2,296
Darlington	62,717	53,442	9,275	17.4	10,768	5,422	5,346	3,929
Dillon	31,083	28,838	2,245	7.8	6,130	2,836	3,294	-1,049
Dorchester	59,023	32,276	26,741	82.9	8,218	3,013	5,205	21,542
Edgefield	17,528	15,692	1,836	11.7	2,724	1,609	1,115	721
Fairfield	20,700	19,999	701	3.5	3,901	2,113	1,788	-1,087
Florence	110,163	89,646	20,527	22.9	19,046	9,133	9,913	10,614
Georgetown	42,461	33,500	8,961	26.7	7,624	3,305	4,319	4,642
Greenville	287,895	240,774	47,121	19.6	41,957	21,653	20,304	26,817
Greenwood	57,847	49,686	8,161	16.4	8,405	5,108	3,297	4,864
Hampton	18,159	15,878	2,281	14.4	3,468	1,834	1,634	647

Table 6. (Continued)

County	----Population---- 1980	1970	------Change------ Number	Percent	--Components of Change (1970-1980)--- Births	Deaths	Increase	Migration Number
Horry	101,419	69,992	31,427	44.9	16,663	6,999	9,644	21,763
Jasper	14,504	11,885	2,619	22.0	2,493	1,258	1,235	1,384
Kershaw	39,015	34,727	4,288	12.3	6,241	3,415	2,826	1,462
Lancaster	53,361	43,328	10,033	23.2	7,995	3,794	4,201	5,832
Laurens	52,214	49,713	2,501	5.0	7,810	4,981	2,829	-328
Lee	18,929	18,323	606	3.3	3,312	1,823	1,489	-883
Lexington	140,353	89,012	51,341	57.7	19,035	7,304	11,731	39,610
McCormick	7,797	7,955	-158	-2.0	1,570	836	734	-892
Marion	34,179	30,270	3,909	12.9	6,286	3,521	2,766	1,143
Marlboro	31,634	27,151	4,483	16.5	5,783	2,955	2,828	1,655
Newberry	31,242	29,273	1,969	6.7	4,819	3,381	1,438	531
Oconee	48,611	40,728	7,883	19.4	7,408	4,005	3,403	4,480
Orangeburg	82,276	69,789	12,487	17.9	13,713	7,477	6,236	6,251
Pickens	79,292	58,956	20,336	34.5	10,037	4,822	5,215	15,121
Richland	269,572	233,868	35,704	15.3	40,635	18,233	22,402	13,302
Saluda	16,150	14,528	1,622	11.2	2,441	1,509	932	90
Spartanburg	203,023	173,724	29,299	16.9	30,027	17,119	12,908	16,391
Sumter	88,243	79,425	8,818	11.1	17,123	6,002	11,121	-2,303
Union	30,764	29,230	1,534	5.2	4,818	3,130	1,688	-154
Williamsburg	38,226	34,243	3,983	11.6	7,520	3,339	4,181	-198
York	106,720	85,216	21,504	25.2	15,882	8,045	7,837	13,667
Total	3,122,814	2,590,713	531,101	20.5	497,141	238,988	258,153	272,948

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population and Housing-Final Population and Housing Unit Counts. PHC80-Y-42; Division of Research and Statistical Services from data supplied by the Department of Health and Environmental Control.

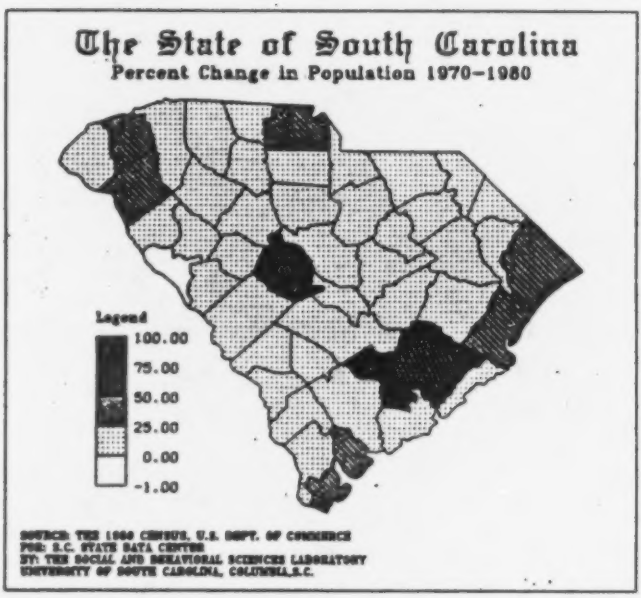


Figure 3.

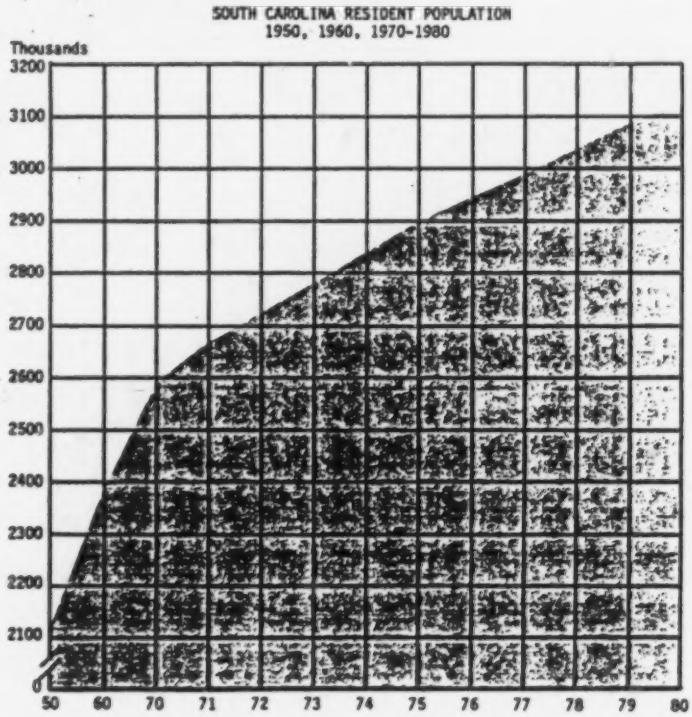


Figure 2.

positive change in population over the decade. On the other hand, inmigration for Berkeley, Dorchester and Lexington Counties helped to boost their population growth to over 50% during the same time span. The comparative growth rate of South Carolina counties from 1970-1980 can be seen in Figure 3.

The uneven growth rate of population in South Carolina appears to be related positively to employment opportunities. For example, Dorchester County, the county with the largest population growth between 1970 and 1980 (82.9%),[8] experienced non-agricultural employment increase of 101.8%.[9] On the other hand, McCormick County which experienced negative growth in population for the same time span, had an employment change of only 36%.[6] This positive employment figure overshadows the serious problem of low per capita income in McCormick County and other rural counties.

Table 7 contains projections of total state population for the years 1985, 1990, 1995 and 2000. These projections, prepared by the Division of Research and Statistical Services of the Budget and Control Board, represent the closest thing available in South Carolina to an official set of projections for use in planning purposes. Review of the projections indicates a relatively rapid rate of growth throughout the 1980's, slowing somewhat in the 1990's. The state's relatively mild climate has been an important factor in attracting substantial numbers of retired elderly persons to South Carolina in recent years. The aging of the U.S. population in the remaining years of this century suggests that the growth of population in South Carolina may include relatively large numbers of older persons.

The uneven pattern of growth that characterized the decade of the 1970s is projected to continue until the year 2000. For example, Horry, Dorchester and Berkeley Counties are expected to have population increase over 90% during the next two decades. However, counties like McCormick, Lee and Chester will have population change as little as 2%[15]. The growing counties will continue to have growth rates exceeding that of the state, but the rate will be less than that experienced during the previous decade.

Table 7. Projected Population for South Carolina, Five Year Intervals, 1980-2000.

Year	Total Population	Annual Compounded Rate of Growth (Previous five years)
1980	3,122,814*	1.9%
1985	3,423,255	1.9%
1990	3,747,787	1.8%
1995	4,012,063	1.4%
2000	4,301,075	1.4%

*Based on 1980 Census of Population

Source: Unpublished projections prepared by Division of Research and Statistical Services, S.C. Budget and Control Board, 1983.

Economy

South Carolina had its beginning on March 15, 1670 when a party of Englishmen arrived at what is now called Bull's Bay, and settled on the south bank of the Kiawah River. The settlement was later moved and

renamed Charleston. From Charleston, the settlements spread along the coast and gradually into the interior.

Early settlers paid for the necessities of life received from England with exports of forest products, furs, and skins of deer. Agricultural production was primarily limited to corn, other cereals, and fruits and vegetables for personal consumption. Rice and indigo were the earliest commercial crops, and were later replaced by cotton as the dominant cash crop. Ironically, it was depressed cotton prices and low wages relative to New England that contributed to the influx of textile plants into South Carolina and the industrialization of the state in the 1900's.

Since 1932, South Carolina's industrial economy has surpassed agriculture as the state's chief source of employment and revenue. Continued diversification of industry is necessary for future economic growth and development.

Between 1970 and 1980, $7,823,824,000[8] were committed for new and expanded plants in South Carolina. Facilities for the production of chemicals and metalworking accounted for the largest portion of this total industrial growth. The rapid growth of the metalworking industry has been particularly impressive. Of the 72 new industrial plants built in South Carolina in 1981, 31 were in the metalworking field. This growth perhaps dramatizes the move from an extreme dependence on textile manufacturing. For that same year, only three new textile plants were opened in South Carolina.[9] No other major sector had as few new entrants.

South Carolina's economy is largely dominated by a manufacturing sector for final goods consumption. In 1980, 430,065[10] persons were

employed in the manufacturing of durable and nondurable goods. Manufacturing will continue to provide much of the state's employment and revenues although recent growth in employment has been greatest in service and retail trade sectors.

Economic Projections

International competition, trade embargoes, and mechanization have threatened future employment in the textile industry which, historically, has accounted for a very large proportion of total nonagricultural employment in South Carolina. In the twenty years beginning in 1980, textile manufacturing employment in South Carolina is expected to decline from 136.9 thousand to 123.4 thousand workers.[11] This decline in employment, however, does not necessarily indicate a decline in the output of the textile industry. Indeed, substantial investments in new equipment have reduced drastically the labor requirements in the textile industry, and there is some indication that the South Carolina textile industry is, and will continue to be, competitive in world markets.

Nevertheless, workers displaced from the textile industry must find new employment (either inside or outside the state) if the South Carolina economy is to be healthy in the years ahead. Employment in lumber, fabricated metals, and machinery manufacturing is expected to grow at rates in excess of four percent in South Carolina in the years between 1980 and 2000.[12] These industries will be able to absorb some of the workers displaced from textiles. Table 8 provides information on projections of selected economic measures in South Carolina and inspection of that table will show that most of the growth in employment is expected to occur in nonmanufacturing sectors, many of which, traditionally, are relatively low-wage sectors. For that reason, the growth in

Table 8. Projections of Selected Economic Measures, South Carolina, 1980-2000.

Economic Measure	1980	1985	1990	1995	2000
Total Nonagric. Employment (in thousands)	1189.2	1274.2	1429.9	1563.9	1682.2
Manufacturing Employment (in thousands)	391.9	392.1	425.5	470.4	501.9
Nonmanufacturing Employment (in thousands)	797.4	882.1	1004.4	1093.6	1180.3
Real Personal Income, 1982$ (in billions)	28.9	32.0	36.8	42.0	47.0
Per-Capita Personal Income, 1982$	9256	9349	9819	10469	10928
Annual Compounded Rate of Increase in Real Per-Capita Income (previous five years average)	2.9%	0.2%	1.0%	1.2%	0.9%

SOURCE: Unpublished projections prepared by the Divison of Research and Statistical Services, S.C. Budget and Control Board, 1983.

real personal income in the state is expected to be considerably slower than that experienced in the previous twenty years.

When the information in Tables 7 and 8 is considered together, it is apparent that South Carolina must expect relatively rapid increases in population and relatively slow growth in real personal income. Increase in population will produce pressures for expansion of existing infrastructure, but the relatively slow growth in income suggests serious problems in finding ways to finance that infrastructure expansion, to say nothing of the financial problems of maintaining existing infrastructure.

IV. TRANSPORTATION

Highways

South Carolina ranks fifth in the nation behind Texas, North Carolina, Virginia and Pennsylvania in total miles of roads and streets under the State Highway System. Of the 62,371 miles of roads and streets in the state, 39,781 miles are under the State Highway System. A further breakdown of the system can be found in Table 9.

Table 9. Mileage, by Classification, South Carolina State Highway System, 1983.

Classification	Miles
Interstate	772
Primary (excluding interstate)	9,388
State Secondary	29,655
Total	39,815

Source: Interview with Department Official.

The South Carolina Department of Highways and Public Transportation is the state agency charged with the responsibility for planning, construction and maintenance of the state highway system. The department is governed by a 20-member commission, 16 members represent the state's 16 commission districts. Two members are appointed by the governor and serve "at large" during the appointed governor's term of office.[1] The two remaining members are chairmen of relevant committees of the State Senate and House of Representatives.

Except for a general fund appropriation for public transportation, state funds used by the department come from the highway fund. The highway fund derives its revenues solely from road user charges (e.g., motor fuel taxes as well as motor vehicle and driver licenses). By law, the costs of debt service, law enforcement, motor vehicle and driver licensing, administration and maintenance must be met before state highway funds can be used for highway construction.[2]

The goal of the state highway system is to provide for the safe and efficient movement of people and goods throughout the state. In addition to completing the Interstate system, the department's first priority is system maintenance and upgrading (to minimum standards) of the rest of the state highway system. New roads must be justified by direct safety or economic benefits.[3]

Table 10 indicates that since 1980 there has been an increase in the percentage of maintenance expenditure. This indicates that the Department of Highways and Public Transportation is beginning to shift its priorities from new construction to preservation of the state's highway system. Further indication is evidenced of a projection of a 34% increase in maintenance expenditures in FY 1983 as compared to 1982.[4]

Table 10. South Carolina Highway and Bridge Construction and Maintenance Expenditures 1978-1983 (millions of dollars).

Year	Total Expenditures (Const. and Maint.)	Construction	Percent of Total	Maintenance[a]	Percent of Total
1978	$182.4	$124.9	68%	$57.5	32%
1979	223.8	155.0	69	68.8	31
1980	240.1	167.4	70	72.7	30
1981	216.9	143.4	66	73.5	34
1982	202.0	127.0	63	75.0	37
(Ext.) 1983	267.7	167.0	62	100.7	38

[a]Includes resurfacing.

Source: Interview with department official.

Federal aid funds are estimated by the Department to increase approximately 31 percent in fiscal year 1983.[5] These federal aid funds can be used for new construction or 4-R (resurfacing, rehibilitation, restoration, or reconstruction) of the state highway system. The federal-aid-state funding matching ratio for the system is as follows:

Interstate	90:10 (federal:state)
Primary, Secondary and Urban	75:25
Bridge Replacement	80:20

Table 11 shows the federal aid reimbursements since 1978. The table indicates that federal aid reimbursements increased from 1978 to 1980, then decreased in 1981 and 1982.

Table 11. Federal Aid Reimbursement for Highways, South Carolina 1978-83 (millions of dollars).

Year	Federal Funds	Percent of Total Highway Expenditures (Const. and Maint.)
1978	$74.1	40.6%
1979	90.8	40.5%
1980	94.1	39.2%
1981	88.0	40.6%
1982	86.2	42.7%
(Est.) 1983	112.7	42.1%

Source: SC DPHT Annual Report,1979-1982

The Department of Highways and Public Transportation estimates that more than one-quarter (10,550 miles) of the state highway system is in critical need of resurfacing.

In order to resurface all roads in the State's primary system every 15 years and all roads in the secondary system every 25 years, the State Department of Highways and Public Transportation must resurface about 1900 miles or roadway annually. In 1982, the Department was able to meet this objective, resurfacing 677 miles of road in the primary system (including Interstate roadways) and 1185 miles of road in the secondary system. At a cost of $30,000/mile in 1982 dollars, the annual cost of meeting the resurfacing schedule is 57 million dollars.[6]

Another part of the department's concern is the categories of relieving congestion and narrow pavements and shoulders in the highway system. Narrow pavements comprise 11,315 miles while narrow shoulders total 3791 miles at a cost of 1,551 million dollars. These highways need to be widened for safety reasons.[7]

The category entitled "Relieve Congestion" is charcterized by pressing areas in which safety considerations are paramount. There are approximately 625 miles where conjestion relief from 2-land to 4-lane highways are needed at a cost of 253 million dollars. Some of the areas follow:

1. U.S. Highway 25 between Hodges and Moonville
2. U.S. Highway 21-by pass in Orangeburg
3. S.C. Highway 9 from N. Myrtle Beach to Green Sea
4. S.C. Highway 151 in Hartsville.

Other projects are underway that make up part of the yet to be completed interstate system. The Southeastern Beltway will cost approximately 70 million. Interstate 526 otherwise known as the Charleston/ Mark Clark Highway is estimated to cost $250 million.[8]

Bridges

Table 12 indicates deficient bridges in South Carolina. Deficient bridges are classified into two categories: 1) structurally deficient, and 2) fuctionally obsolete. Structurally deficient means a bridge is weak and inadequate to carry all types of traffic or is in danger of becoming that way in a short period of time. A functionally obsolete bridge is one which is narrow or otherwise not capable of safety carrying the volume of traffic which passes over or under it. Any bridge classified as structurally efficient is excluded from the functionally obsolete category.[9]

Table 12. Deficient Bridges in South Carolina, by Type of Deficiency, 1983.

Type of Deficiency	State Primary System No.	State Primary System Cost/1000$	State Secondary System No.	State Secondary System Cost/1000$	County Owned No.	County Owned Cost/1000$	Total No.	Total Cost/1000$
Structurally Deficient	90	$215,905	420	$83,118	631	$91,091	1,141	$390,114
Functionally Obsolete	366	$166,616	298	$75,328	391	$60,357	1,055	$320,301
Total Statewide Deficient	456	$382,521	718	$158,446	1,022	$155,448	2,196	$692,415

Note: All cost estimates should be considered preliminary.

Projections of Needs and Available Monies for Highways and Bridges

Summary estimates of investment needs and available monies for highways and bridges in South Carolina are shown in Table 13. Before examining in detail the estimates shown in Table 13, some general information concerning assumptions is needed. The annual available funds were estimated assuming federal aid apportionments for FY 1983, 1984, and 1985, plus carryover from FY 1982. It was also assumed that federal obligation ceilings are removed and that state funds will be available to match all federal aid.

The amount shown available for each type of investment is dictated by federal requirements except in the case of investment in bridges and in improvements to primary and secondary systems. Available funds also include monies in the so-called "C" fund used for resurfacing of state secondary roads. Needs estimates are based on interviews with officials of the State Department of Highways and Public Transportation and are premised upon bringing the state highway system up to minimum standards of the American Association of State Highway Officials and Federal Highway Administration except that no provision was made for correcting substandard horizontal and vertical alignments. Other assumptions are spelled out in notes on the table.

As shown in Table 13, the annual deficit between needs and available monies for all investment in highways and bridges in South Carolina is on the order of 130 million dollars. In other words, the Department has available on an annual basis only about 59 percent of the monies needed to satisfy requirements. On a percentage basis, the largest deficit is incurred in making needed investments in repair and replacement of deficient bridges, but a substantial deficit also exists in making

Table 13. Estimates of Funds Needed and Available for Highway Infrastructure Investment by S.C., 1981-2000.

Type of Investment	--Annual Average-- Need	Available	Deficit	----Cumulative 1981-2000----- Need	Available	Deficit
	----------Millions of 1982$----------					
Resurfacing of Primary and Secondary System*	$ 57	$ 44	$ 13	$1140	$ 880	$ 260
Complete Interstate System	97	97	0	650	650	0
Improve Primary and Secondary System**	106	54	52	2117	1080	1037
Bridges***	84	20	64	1082	400	682
New Construction****	21	unknown	-	420	unknown	-
TOTAL	$365	$215	$129+	$5409	$3010	$1979+

Estimated from data obtained from S.C. Department of Highways and Public Transportation,

*Based on cost of complete resurfacing of interstate system every 15 years and of other systems every 25 years.

**Includes cost of adding lanes and improving shoulders on 3791 miles of highways over a 20 year period.

***Estimated based bringing structural deficient bridges to standard in five years and bringing functionally obsolete bridges to standard in ten years.

****Includes costs of planned metropolitan area construction.

needed investments in widening narrow roads and improving shoulders so as to increase traffic safety.

Urban Public Transportation

Urban public transportation in South Carolina is relatively underdeveloped. Bus systems are used in 11 communities. In four of these communities, the bus service is provided by the electric power utilities as part of an arrangement associated with the franchise of those utilities. Duke Power Company provides bus service in Anderson and Spartanburg, and South Carolina Electric and Gas provides service in Charleston and Columbia. In seven other communities, the service is provided by a public system that is either municipal, or municipal/county owned. Attention in this section is focused exclusive on the publicly-owned systems and their needs.

In estimating the future capital needs of these systems, it is necessary to make several assumptions concerning population growth and the spatial distribution of that growth. Capital needs expand with urban sprawl. Consequently, if future population growth is concentrated in rather dense pockets in the communities with public bus service, the needs will be less than if that growth is distributed over a relatively wide area. In addition, assumptions are required relative to frequency of service. The estimates provided below are based upon assumptions that the seven communities will retain a constant share of the state's population, that their population growth will result in land-use patterns similar to those now in existence, and that there will be no substantial change in the frequency of service from what is now offered.

Table 14 provides the estimates on funds needed for infrastructure capital in the seven publicly-owned bus systems. The seven systems now

operate approximately 130 buses, and it is assumed that approximately 20 percent of those buses will need to be replaced each year to maintain a fleet in suitable operating condition. At 1982 prices, about $3.7 million will be needed each year to purchase these replacement vehicles. In addition, about 51 buses will need to be added to the fleet to accommodate population growth during the period 1980-2000, at a total cost of approximately six million dollars. The average annual cost of acquiring those additional buses will be about $300,000 at 1982 prices. Finally, existing capital facilities (i.e., garages, maintenance vehicles and equipment, etc.) will need to be kept in repair and new facilities added to accommodate growth at a cost of approximately $100,000 annually. Total annual capital costs are estimated to amount to $4.1 million, with the cumulative cost over the 20-year period being approximately $82 million.

Table 14. Estimates of Funds Needed and Available for Infrastructure Investments in Urban Public Transportation, South Carolina, 1980-2000.

Type of Investment	Annual Average		Cumulative	
	Need	Available	Need	Available
	1982 $			
Replacement of Obsolete Vehicles	3,700,000	unknown	74,000,000	unknown
Additions to Fleet	300,000	unknown	6,000,000	unknown
Capital Facilities	100,000	unknown	2,000,000	unknown
Total	4,100,000	unknown	82,000,000	unknown

Source: Based on population projections for seven communities with public bus service and cost data provided by Donald Durham, Director, Greenville Public Transit Authority.

No information is available to make reasonably reliable estimates of available funds. The principal source of such funds in recent years has been federal government grants. The Urban Mass Transit Act provides for grants for both operating and capital expenditures on the condition that 20 percent of the costs be covered with non-federal monies. The Surface Transportation Assistance Act of 1982 also makes available federal monies for local public transportation systems. But, federal programs to assist urban transportation systems are in such a state of flux that it is impossible to predict how much, if any, federal money will be available to meet needs in South Carolina. Local governments have subsidized public transportation systems and will probably continue to do so. But the amounts to be made available from local sources depends upon other local needs and the political constituency that develops for local public transportation. That constituency in South Carolina has, in the main, been made up of the elderly poor and Blacks, and neither of those groups has significant amounts of political influence relative to other local constituencies pressing for expenditures of tax dollars. It seems safe to conclude that fare-box receipts and local subsidies will not be sufficient to meet capital needs of public transportation systems in South Carolina unless generous federal grants are available.

Airports

There are 81 airports in South Carolina. Seventy-six of these are public use airports while five are air carrier airports. The air carrier airports are located in Charleston, Columbia, Florence, Greenville-Spartanburg and Myrtle Beach. These facilities receive regularly scheduled service from airlines certified by the Civil Aeronautics Board. Table 11 identifies specific air carriers, total state enplanements, annual operations and cargo and mail tonnage.

Further examination of these data indicates that approximately 66 percent of the total emplanements occurred at the Charleston and Columbia Airports. This is consistent with the relationship between population concentration and aviation activity.

The State Aeronautics Commission is the agency responsible for statewide airport planning. The commission also manages and administers the two sources of federal funds, the Federal Aviation Administration (FAA) and the Airport Development Aerial Program (ADAP). ADAP funds are generated through user taxes imposing the costs of the system on those who enjoy its benefits. The taxes are placed in an airport/airway trust fund and are dispersed to the air carrier airports on the basis of an enplanement formula and to the local communities for general aviation development. ADAP funds may be used to finance a portion of eligible development at air carrier and general locations.[10]

Another funding source, the Economic Development Administration (EDA) offers project grants and direct loans for the construction of public facilities that encourage industrial as well as economic growth. Any non-profit local or state group representing a development area or designated economic development center is eligible for funding.[11]

The South Carolina Aeronatutics Commission prepared an airport system plan that was approved by the Federal Aeronautics Administration in June 1981. After examining five alternatives, the Commission recommended a system of general aviation airports interfaced with airports offering commercial scheduled service. Commercial scheduled service with connections to major out-of-state cities would be offered from airports at Charleston, Columbia, Greenville-Spartanburg, Florence, and Myrtle Beach. Commuter air service would be offered from airports at

Anderson, Greenwood, and Hilton Head. Other publicly-owned airports would be upgraded as needed to meet the demands of general aviation and to provide an airport within 30 minutes driving time of all residents of the state.

The planning document prepared by the Aeronautics Commission provides an estimate of the costs of implementing that plan. Those costs, adjusted to reflect 1982 costs, are shown in Table 15. The assumption is made that both state and federal funds needed would be available and that the various federal formulas for allocations of ADAP and EDA funds will remain intact. Over the 20-year planning period, about 101 million dollars will be required to implement the South Carolina airport plan. During the decade of the 1980's, the state will need to provide about 1.3 million dollars per year. Funds that will need to be provided by local governments and airport commissions, however, cannot be estimated.

Table 15. Estimates of Funds Needed and Available for Airport System Construction and Improvement in South Carolina, 1980-2000.

Item	State		Federal	
	Need	Available	Need	Available
	millions of 1982$			
1980-1990 average annual	$ 1.3	$ 1.3	$ 4.0	$ 4.0
1980-1990 cumulative	12.9	12.9	40.0	40.0
1980-2000 cumulative	26.6	26.6	75.0	75.0

Source: S.C. Aeronautics Commission, Summary Report, The South Carolina Airports System Plan, December 1980.

V. WATER SUPPLY

Background

There are three state agencies that deal with water resources: 1) The South Carolina Water Resources Commission (responsible for water resources planning, development and conservation); 2) The South Carolina Department of Health and Environmental Control (public health and water supply facilities, from source to distribution); and 3) The South Carolina Land Resources Commission (dam and reservoir safety).

In addition to these state agencies, there are also three federal agencies that operate independently from the state, and are involved in the development and financing of water resources. These agencies are: 1) The U.S. Army Corps of Engineers which is involved in construction and management of reservoirs and waterways; 2) The Farmers Home Administration which loans money to towns and municipalities with populations of 10,000 or less for development of public water systems. This agency deals only with towns of population 10,000 or less. 3) Soil Conservation Service which helps to develop flood control systems and to finance (up to 50%) irrigation networks. In addition, where local sponsorship is available, the Soil Conservation Service will include storage capacity for community and non-community water supply systems in flood control reservoirs. 4) Environmental Protection Agency, which has delegated "primacy" under the Federal Safe Drinking Water Act to the Department of Health and Environmental Control in South Carolina.

Lakes

South Carolina possesses an ample supply of fresh, clean lake water, and except for a few troubled areas, water supplies are clean and safe.[1] In South Carolina there are 60 lakes which are 200 acres in surface or more. Most of these are privately owned. However, the 15 largest lakes make up for almost 99% of the total storage capacity for the state.

Municipal and Industrial Water Supply Systems

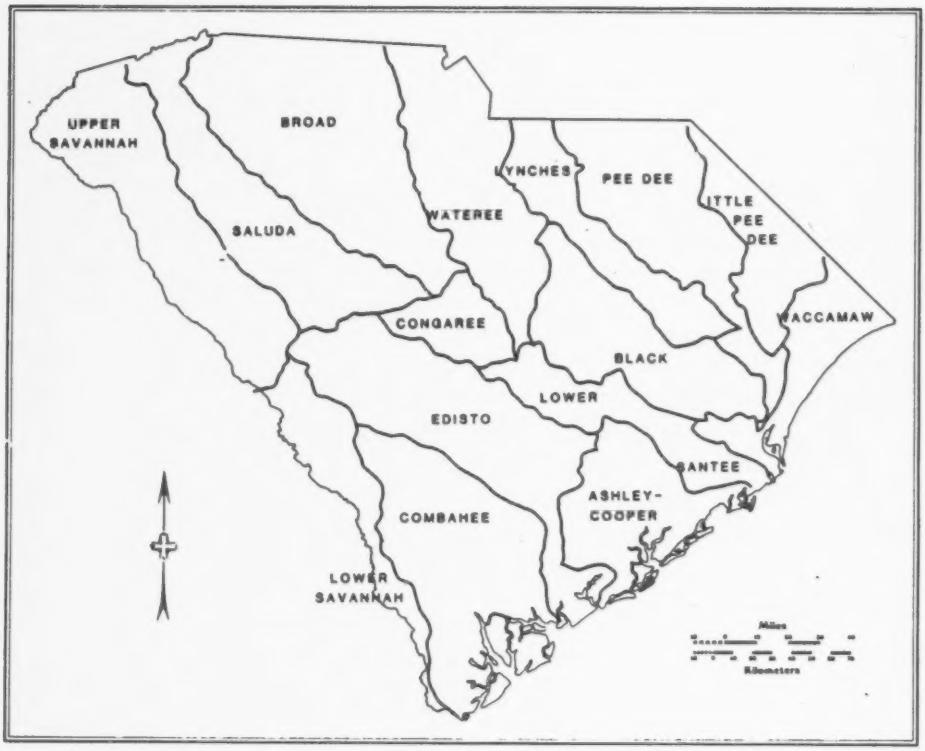
The state of South Carolina has been divided for hydrological purposes into 15 sub-basins within four major basins (Pee Dee, Santee, Savannah, Ashley-Combahee-Edisto). The sub-basins are illustrated in Map 2.

South Carolina has a total of approximately 2850 water supply systems. Approximately 1000 of these systems are community water systems, meaning that they are public water suppliers for year-round residents of municipalities, subdivisions, mobile home parks, etc. The remaining systems are non-commuinity systems supplying water to schools, institutions, industries, recreation areas, etc.

South Carolina Total Water Demands

Total water demands include not only the demand from the water systems but also water used by utilities, water used for industrial, agricultural and livestock uses, and water used for recreational purposes. Some of these uses are consumptive (agriculture and livestock, municipal, and some industrial uses).

In South Carolina, water demands are primarily met by surface water sources (rivers, reservoirs and natural impoundments). Ground water is



Map 2. South Carolina River Subbasins.

expected to increase in importance as a source in the future, however. The reason for the expected increase in the importance of ground water have to do with its relative abundance in the coastal plain, the region of the state expected to experience some of the most rapid growth in population and a region, which because of terrain, is not well-suited to construction of surface water impoundments. While a few isolated cases exist where water supplies are inadequate, water resources appear to be adequate in South Carolina to meet the needs of foreseeable growth. Supply problems are primarily the result of failure to make adequate capital investments for using the available water resources.

A summary of actual and projected water demands by source is given in Table 16. From Table 16, we see that surface water demand in 1983 is 5777.7 MGD. For year 2000, total demand is expected to be 6456.8 MGD.[2]

Table 16. Water Demand by Sub-Basin, Actual (1983) and Projected (2000), South Carolina.

Sub-Basin	Total Demand		Percentage Annual Growth
	1983	2000	
	----------mgd----------		------%------
Ashley-Cooper	388.1	444.0	0.8
Black	30.1	38.1	1.4
Broad	127.9	274.7	4.6
Combahee	39.3	53.2	1.8
Congaree	90.1	106.7	1.0
Edisto	263.4	306.9	0.9
Great Pee Dee	845.3	919.7	0.5
Little Pee Dee	10.3	14.9	2.2
Lynches	16.9	21.7	1.5
Saluda	474.9	508.1	0.4
Santee	18.3	26.5	2.2
Lower Savannah	727.4	847.0	0.9
Upper Savannah	2072.7	2107.9	0.1
Waccamaw	123.0	136.2	0.6
Wateree	550.0	651.2	1.0
Total S.C.	5777.7	6456.8	0.6

Source: Calculated from estimates provided by the S.C. Water Resource Commission.

Water Supply Investment Needs

Table 17 provides a basis for limited estimation of needed investments in water supply systems in South Carolina by hydrologic sub-basin. The South Carolina Water Resources Commission, as part of its on-going effort to develop a state water plan, has identified needed infrastructure for water supply in 11 of the 15 sub-basins in the state. In nine of those sub-basins, expected needs forecasted to the year 2000 can be met by additional wells. While the cost of drilling wells varies rather widely from one location to another, an average cost of $50,000 is judged to represent a "ballpark" estimate for most South Carolina communities. Hence, about 25.7 million dollars (at 1982 prices) will need to be invested in additional large wells to meet water supply needs by the year 2000. In the Broad and Saluda sub-basins, however, the Water Resources Commission studies indicate that it will be necessary to construct additional reservoirs to meet water supply needs. The costs of these reservoirs cannot now be determined because planning is not sufficiently advanced to suggest location of sites, number of reservoirs, size, etc. Suffice it to say that the cost would run into hundreds of millions of dollars. In four of the sub-basins, study is continuing relative to identification of the type of infrastructure investment best suited to meeting future water supply needs.

The cost estimates in Table 17 do not include any allowances for upkeep on existing distribution systems or the construction of new systems. Expenditures for distribution systems will depend heavily upon

Table 17. Infrastructure Needs to Meet Projected Water Supply Demands, by Sub-Basins, South Carolina, 2000.

Sub-Basin	Needed Infrastructure	Estimated Cost
		millions of 1982$
Ashley-Cooper	Under study	unknown
Black	37 additional wells	$1.8
Broad	Additional reservoirs	unknown
Combahee	83 additional wells	4.2
Congaree	Under study	unknown
Edisto	99 additional wells	5.0
Great Pee Dee	93 additional wells	4.7
Little Pee Dee	17 additional wells	0.9
Lynches	21 additional wells	1.0
Saluda	Additional reservoirs	unknown
Santee	15 additional wells	0.8
Lower Savannah	75 additional wells	3.8
Upper Savannah	Under study	unknown
Waccamaw	70 additional wells	3.5
Wateree	Under study	unknown
Total S.C.		$25.7

land-use patterns. Costs of laying pipe of all sizes in small water systems in South Carolina in 1972 was $2.05 per linear foot.[3] Adjusted for inflation, that cost would amount to approximately $4.80 in 1982 dollars. In addition to the costs of putting down additional pipe, however, there are costs associated with elevated tank storage. Again, those costs will vary with the number and size of tanks. In 1972, the mean tank size in South Carolina was 148,300 gallons and construction costs amounted to $65,222. Adjusted for inflation, the construction cost for a similar tank in 1982 dolllars would be approximately $150,000. Using these numbers, and assuming that the expansion of water systems follows the patterns relative to size and distribution already existing in South Carolina, the total capital cost for distribution systems to meet additional water supply needs in 2000 (Table 16) will be approximately $250 million. However, there are some economies of size in water distribution systems, and it is quite likely that settlement patterns in the state in the years ahead will allow those economies of size to become operative. Consequently, we estimate the capital needs for water distribution systems in South Carolina for the period 1980-2000 to be about $200 million in 1982 dollars.

Table 18 provides summary estimates of expected costs of meeting water supply needs in South Carolina for the period 1980-2000. These estimates are very generalized, however, and must be viewed as only "ballpark" estimates. Higher or lower costs could be incurred depending upon the geographic distribution of population growth in the state. Nevertheless, about $21.3 million per year will be needed to keep water supply systems in the state at levels adequate to serve needs. Over the

20-year period, about $425.7 million will need to be invested in the physical structure of the water systems.

Placed in some perspective, the annual investment needs indicated in Table 18 represent only about $21,300 per community water supply system. There is no obvious impairment to these systems being able to meet this need either from operating revenues or through modest bond issues. The question that cannot be answered, given the available information and the difficulty of surveying the approximately 100 community systems, has to do with the costs of maintaining the existing system. On the other hand, it seems reasonable to expect that water customers should incur these costs as part of the price they pay for water. While some increases in the rate structure used by the various systems in acquiring revenue may be required, South Carolina's community water system should be able to generate sufficient revenues to meet their future needs.

Table 18. Summary Estimates of Capital Investment Needs in Water Supply Systems in South Carolina, 1980-2000.

Item	Average Annual Investment	Cumulative Investment (1980-2000)
	millions of 1982$	
Wells	$ 1.3	$ 25.7
Reservoirs	10.0	200.0
Distribution Systems	10.0	200.0

Dam and Reservoir Safety

The state has an inventory of 3487 dams. This inventory includes only reservoirs of 10+ acres of surface. The director of the Dam and Reservoir Safety Program has created three classifications, according to the degree of danger should a failure occur. These classifications are:

Class I. - If dam should fail there would be loss of life. There are 190 dams are in this class.

Class II. - If dam should fail there would probably be loss of life and there would be considerable property damage. There are 891 dams are in this class.

Class III. - If dam fails no life is at risk, and property damage would be minimal. There are 2406 dams in this class.

The majority of these dams are privately owned (about 95%). The majority of dams are small and the reservoirs created are used for recreational purposes. At present 75% of dams need some structural repair work.

The S.C. Land Resources Commission supervises dams and advises owners of the needs for repair. However, the commission does not carry out the repairs. This task is left to the owners. Reservoirs of less than 10 acres in surface are not subject to inspection, and are exempt from state supervision.

Revenues

The U.S. Army Corps of Engineers has budgeted $36,000,000 for the 1983 fiscal year. This money is used to maintain those dams operated by the corps, and to finance new projects.

When a reservoir is operated by a utility or another private party, it is the responsibility of the owner to take care of repairs or modifications recommended by the state Land Resources Commission or by the U.S. Army Corps of Engineers (when the surface of the reservoir exceeds 200 acres, supervision falls in the corps).

In the state of South Carolina, there is no specific legislative act providing funds for the repair and/or development of water projects. Each project is assigned a budget on a case-by-case basin. In the case of city or county owned facilities, it is the responsibility of the local government to provide funding for these needs.

VI. WASTE WATER TREATMENT

Background

The Bureau of Waste Water and Stream Quality Control of the South Carolina Department of Health and Environmental Control is responsible for waste water treatment in the state. The Municipal Construction Grants Program was authorized by Congress under Public Law 92-500 in 1972 to provide financial assistance to publicly-owned wastewater treatment systems for the purpose of upgrading such systems in accordance with schedules requiring treatability attainment levels mandated in this same law. Originally, grantees were provided funds at 75% of eligible cost to develop a facilities plan, a document which identifies the most cost effective, environmentally sound and implementable solution to their needs over a twenty-year period; funds at 75% were also given to develop design drawings and specifications and for the actual construction of selected improvements. Since its enactment, more than $400 million have gone into the development and construction of facilities in South Carolina.

In 1977, Congress amended the Water Pollution Control Act with the passage of Public Law 95-217 which became known as the Clean Water Act. While many changes to the original law resulted, the most significant impacted the various states directly and led to the disassociation of the EPA from a direct roll within the Construction Grants Program. In March of 1979, South Carolina entered into an agreement with the EPA which in effect began the transfer of authority under the program to the state. Today, South Carolina, among many states, is considered a fully delegated state. This delegation authorizes the state full approval authority in all aspects of the program leaving the EPA in an overview

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capacity. The relationship under this agreement has led to a more stable program, enabling the needs of local communities to become satisfied in a more responsive manner than previously.

Needs

The state conducts an annual assessment of needs under the program by developing each year a list of projects where funds have been requested. This list is divided into two parts, a fundable portion and a planning portion. The fundable portion represents projects which the state intends to award a grant for the coming year. Projects are placed within this portion based upon their total cost in comparison to relation to the total amount of funds made available to the state by Congress. The planning portion consists of those projects which either are not far enough along with completing their facility plan/design requirements or for which the state does not have funds sufficient to cover the cost of construction in comparison to other projects. The list itself consists of a one-year fundable portion representative of the current year of funding and four subsequent years which are called the planning portion. An examination of the state's FY-1983 Project Priority List indicates a total dollar cost of $484 million for the sum of all projects contained within it.

Projected needs for South Carolina for the period 1980-2000 were obtained from the biannual needs survey conducted by the U.S. Environmental Protection Agency.[1] Those projected needs are shown in Table 19. Of the approximately $990 million expected to be needed in the last 20 years of the century, slightly more than two-thirds ($681.4) is needed to build new treatment plants or to upgrade existing plants. Almost all

of the remainder is accounted for by the costs of putting in needed collector lines and instrumentation.

Table 19. Estimates of Capital Costs for Needed Publicly-Owned Wastewater Treatment Facilities, South Carolina, 1980-2000.

Item	Annual Need	Cumulative Need 1980-2000
	--------millions of 1982$---------	
Construction of plants	34.1	681.4
Collectors and Appurtenances	14.2	294.4
Other	1.2	24.3
Total	49.5	990.1

Source: Adjusted from 1980 Needs Survey: Cost Estimates for Construction of Publicly-Owned Wastewater Treatment Facilities, EPA,FRD 19, February 1981.

Revenues

The Bureau's current authorized funding level is $25 million annually under the EPA construction grants program for FY 1983. For each of the next two years, the Bureau has authorized approximately the same amount. At the current, authorized funding level of $25 million annually, it would take nearly 20 years to satisfy all of the needs on the FY1983 Project Priority List. Current trends are such that only $24 billion will be provided nationally for the program over the next 10 years of which the most South Carolina could expect to receive would be $250 million, a little more than one-quarter of what current needs indicate. Unless changes occur on the national level, the remainder of

these costs are non-affordable on the state level, and communities will more than likely have to resort to alternative methods of financing in order to satisfy their needs.

Solid and Hazardous Waste Disposal

Background

The Bureau of Solid and Hazardous Waste of the Department of Health and Environmental Control has the responsibility of enforcing state and federal legislation with respect to the collection, transfer, storage, treatment, or disposal of hazardous and nonhazardous wastes. The Bureau's Division of Engineering and Program Development has the responsibility for the evaluation of hazardous and nonhazardous facilities as well as for program development. In evaluating facilities, the principal activities include site evaluation, planning reviews, and administration of permit issuances. Program Development entails preparation of policy and legislation, review and recommendation of program changes, development and implementation of resource recovery program, and maintenance of records on manifest, financial supports, and required notification.

The Division of Compliance and Evaluation has the responsibilities of waste identification and evaluation and of compliance and enforcement. Under waste identification and evaluation, the activities include: 1) coordination of spills and emergency response activities; 2) providing information on treatment and on storage and disposal options; 3) development of engineering timetables for enforcement actions; 4) review and evaluation of requests for variances; 5) by-product exemptions; 6) relief from hazardous waste listing review and

evaluation of special waste disposal requests; and 7) evaluation of industrial processes for specific hazardous waste stream. The compliance and enforcement activities include: 1) conducting surveillance of generator activities; 2) undertaking compliance inspections; 3) administering actions; 4) preparing cases for referral to counsel; 5) coordinating complaint investigations; and 6) coordinating of national dump inventory.

Needs

DHEC does not have adequate resources to implement the comprehensive hazardous waste program which is envisioned under federal and state statutes. With only 28 man-years presently available, DHEC cannot evaluate record keeping, reporting, and contingency fund activities, and conduct compliance inspections and surveillance activities involving more than 900 industrial generators; review permit applications including plans and specifications, issue and review permits including public notification and hearings and conduct compliance inspections and surveillance activities for more than 400 storage, treatment or disposal facilities; verify proper transportation of more than 1000 shipments of hazardous waste annually through evaluation of manifests; issue and review permits including evaluation of liability insurance coverages and coordinate compliance inspections with federal and state transportation agencies for more than 125 transportors; and investigate, evaluate, and develop enforcement actions for suspected abandoned waste sites.

Revenues

The revenues for the 1983 fiscal year come from two sources. The state budgeted $820,037 and federal fund through EPA's RCRA program amounted to $894,400, for a total of $1,714,437.

Needs versus Revenues

Estimates of 40 man-years and 45 man-years, respectively, have been made by DHEC and EPA of the manpower needs of the state's hazardous waste program. In dollar terms, this translates into an additional amount of revenue in the range of $500,000 to $800,000 in order to meet current manpower requirements. The Bureau has not made any long-term projection of its investment needs.

VII. CONCLUSIONS

Basic Findings

Rather large investments in public infrastructure have occurred in South Carolina during the past 20 years because the state has been undergoing relatively rapid growth in population and in its economy. Consequently, existing infrastructure in the state is relatively new, and for that reason, may not require the large expenditures for repair and maintenance that will be required in other states with an older stock of infrastructure.

Nevertheless, South Carolina will continue to need to make rather large investments in public infrastructure during the remaining years of this century. While economic growth in the state is expected to be less robust than that experienced in the past 20 years, population growth is expected to continue at relatively high rates. State and local governments will need to find ways to provide the infrastructure needed to service this population growth at a time when tax revenues are likely to be growing rather slowly. That situation will pose some difficult fiscal problems for South Carolina governments.

Table 20 provides an overview of estimated capital needs for infrastructure in South Carolina in the period 1980-2000. Measured in 1982 dollars, the total investment need amounts to about seven billion. About three-quarters of that amount ($5.4 billion) is needed to maintain and improve the state's highways, rebuild its bridges, and build the new roads needed to service a growing urban population. Almost a billion dollars will be needed to build wastewater treatment facilities that assure that all federal environmental standards are met and the existing

high-quality environment in South Carolina is protected. At least one-half billion dollars will be required to expand water supply systems.

Table 20. Summary Estimates of Capital Needs for Infrastructure, State and Federal Sources, South Carolina, 1980-2000.

Type of Infrastructure	Annual Need			Cumulative Need 1980-2000		
	State	Federal	Total	State	Federal	Total
	millions of 1982$					
Highway System	155.4	115.0	270.5	3,106.4	2,302.6	5,409.0
Public Urban Transit	--	--	4.1	--	--	82.0
Airports	1.3	4.0	5.3	26.6	75.0	101.6
Water Supply Systems	--	--	21.3	--	--	425.7
Wastewater Treatment	24.5	25.0	49.5	490.0	500.0	990.0
Total	181.2	144.0	350.7	3,673.0	2,877.6	7,008.3

Source: Calculated from previously cited tables.

If current federal programs are continued at funding levels (in 1982 dollars) at or near what now exist, South Carolina should be able to finance the needed infrastructure investment. Meeting those investment needs will require an annual outlay by state government and its political subdivisions of at least $181.2 million. Depending upon the extent to which federal funds are obtained for public urban transit and for water supply systems, the state and local commitment could become as much as $350 million. But with continuation of existing federal

programs to assist urban public transit and the construction of water supply systems, the state and local need is likely to be less than $200 million annually. Some of this need, particularly that for water supply systems and wastewater treatment facilities, can be financed through the sale of revenue bonds. With some planning, the state and its subdivisions should be able to finance the remainder without seriously impairing bond ratings.

While continuation of existing federal aid at or near present levels will probably allow South Carolina to meet most of its infrastructure investment needs, it should be noted that problems have arisen, and will arise in the future, due to the earmarking of certain types of federal aid for very specific types of infrastructure investment. It is possible that the total amount of federal aid allocated to South Carolina will be sufficient to meet the state's needs, but that narrow restrictions on how that federal money can be used will not allow sufficient funds to be allocated to certain high-priority needs. Indeed, slightly more than half of the federal highway money received by the state is earmarked for the interstate system, yet large expenditures are required for maintenance of non-interstate highways. Counties, in particular, may be hardpressed to find the financial resources necessary to maintain county-owned roads. Greater state and local discretion in the allocation of federal funds within rather broad expenditure categories would help to prevent some problems in the future.

Discontinuance of existing federal programs, or major reductions in the funding levels of those programs, however, would force governments in South Carolina to make very difficult choices. In addition to the infrastructure capital needs identified in this study, the state faces

pressing needs to make substantial capital investments in the educational systems and in prisons. If there are major reductions in federal programs, the probable loser will be the South Carolina educational system. The infrastructure needs, at least to some extent, will have to be met because failure to do so would seriously disrupt everyday life. The federal courts will probably require that the needed investments in the prison system are made. But South Carolina is a poor state. If South Carolina governments are forced to make all of the infrastructure and prison investments without significant federal assistance, it is unlikely that sufficient financial resources will remain to make needed investments in education and in other areas where failure to make sufficient investment has no immediate effect on everyday life.

Planning Infrastructure Investments

Even with continuance of existing federal programs at or near current funding levels, South Carolina will need to husband its resources carefully in order to meet all the important needs facing the state. Such husbanding of resources requires planning for capital investments in some rational way. Earlier in this report we noted that such planning occurs in the state now only the most rudimentary fashion, and indeed, that the structure of government in South Carolina makes comprehensive capital planning difficult to achieve.

The only comprehensive planning of capital needs for South Carolina has occurred in regard to airports. To a lesser extent, the S.C. Department of Highways and Public Transportation has attempted to examine further highway needs and assign some priority to those needs. The work of the Department of Highways and Public Transportation, however, does not seem to integrate highway planning with planning for public

transportation systems, leaving public urban transit concerns to local agencies. The Department of Health and Environmental Control does some rudimentary planning with regard to wastewater treatment facility needs, but gives very little attention to potential water supply problems. Water supply concerns fall within the mission of the State Water Resources Commission, but planning by that agency, to date, has failed to identify specific needs in specific communities. Even if all the affected agencies were performing their individual missions in an optimal way, there exists no mechanism for integration of agency plans into a comprehensive state planning approach that takes account of fiscal resources and the tradeoffs between various needs.

With the South Carolina governor hampered by limited constitutional powers, the only existing body in South Carolina having the capability of integrating agency planning and developing a capital needs plan is the State Budget and Control Board. The Budget and Control Board currently has considerable capability for making economic and demographic forecasts. The State Treasurer, as a member of the Board, is capable of providing information and insights relative to the abilities of the state to issue bonds and meet debt service obligations. The chairman of the chief legislative committees dealing with fiscal affairs sit on the Board and are capable of providing legislative leadership for implementation of a capital improvements plan. With some effort, it would seem possible and practical to establish a capital needs planning group within the staff of the Budget and Control Board that could effectively integrate plans prepared by various state agencies.

In establishing such a planning group, however, care must be taken to account for the capital needs of local governments as well as of

state government. The relatively high debt service expenditures of special districts in South Carolina suggests the potential for some difficulties in the future, and a prerequisite to effective capital planning in South Carolina is identification of all special districts and regular monitoring of their capital needs and fiscal condition. The problem of integrating county and municipal government capital planning is less difficult because all such units of government are already identified. But, the capital needs and fiscal condition of county and municipal governments should also be taken into account by the capital needs planning group of the Budget and Control Board.

REFERENCES

I. INTRODUCTION

II. SOUTH CAROLINA PUBLIC FINANCE

1. State Budget and Control Board, Annual Report 1980-1981. Columbia, December 1981, pp. 12-14.

2. H. W. Fleming, Jr. and J. C. Hite, "An Inventory of Local Government Services, Functions, and Sources of Funding," S.C. Local Government Finance Study, Clemson University, Clemson, SC, Working Paper 62579, June 1979, pp.3-19.

3. U.S. Bureau of the Census, Census of Governments, 1977. Washington, U.S. Dept. of Commerce, Vol. 3, No. 1, p.4.

4. State Treasurer

5. State Budget and Control Board, 1982 South Carolina Statistical Abstract. Columbia, Div. of Research and Statistical Services, 1982, p.277.

6. 1982 S.C. Statistical Abstract also "Monthly Revenue Letter," S.C. Budget and Control Board, Sept. 1982.

7. J.C. Hite and H. W. Fleming, "Proposition 13 and the Tax Revolt: Implications for South Carolina," S.C. Local Government Finance Study, Clemson University, Clemson, SC, Working Paper 10178, p.12.

III. POPULATION AND ECONOMIC OVERVIEW

1. 1982 South Carolina Statistical Abstract, p.13.

2. Ibid

3. U.S. Bureau of the Census, Statistical Abstract of the United States, 1982. p.13

4. 1982 S.C. Statistical Abstract, p.222.

5. South Carolina State Data Center Newsletter, Vol. 3, No. 1 (Spring 1983).

6. 1981 S.C. Statistical Abstract, p.199.

7. Ibid

8. "Op At., p. 199.

9. This number and the following employment rate were computed from data reported in the 1973 and 1981 S.C. Statistical Abstracts, pp.19 and 84, respectively.

10. 1981 S.C. Statistical Abstract, p.164

11. South Carolina Development Board.

12. 1982 S.C. Statistical Abstract, p.54.

13. Ibid., p.95.

14. Office of the Chief Economist, S.C. Division of Research and Statistical Services, June 1981.

15. Figures computed from county projections provided by the National Planning Association.

16. Office of the Chief Economist, S.C. Division of Research and Statistical Services, Standard Long-Term Projections, June 1981.

17. The 1969 value and projected value were taken from BEA, 1980, Report. Projections were based on 1978 data.

IV. TRANSPORTATION

1. Annual Report, S.C. Department of Highways and Public Transportation, July 1, 1981-June 30, 1982, p.10.

2. Ibid.

3. Ibid.

4. Interview with staff, S.C. Dept. of Highways and Public Transportation, May 1983. (hereafter cited as staff interview).

5. Ibid.

6. Unpublished report, S.C. Dept. of Highways and Public Transportation, May 1983.

7. Staff Interview.

8. Ibid.

9. Ibid.

10. Systems Plan, South Carolina Aeronautics Commission, Columbia, December 1980, p.15.

11. Ibid.

V. WATER SUPPLY

1. South Carolina Water Resources Commission, Report No. 127.

2. Draft of a Supply and Demand Study being conducted by the South Carolina Water Resources Commission, May 1983, and telephone interview of Mr. Chris Brooks, Deputy Director of the Commission.

3. Dan L. McLemore and Robert E. McCormick, Estimating Costs of Rural Water Systems, S.C. Agricultural Station, Dept. of Agric. Econ. and Rural Soc. Clemson University, Clemson, SC, AE 386, May 1976.

VI. WASTEWATER TREATMENT

1. 1980 Needs Survey: Cost Estimates for Construction of Publicly-Owned Wastewater Treatment Facilities, EPA,FRD,9,February 1981.